

[SPLIT GATE FLASH MEMORY CELL AND MANUFACTURING METHOD THEREOF]

Abstract

A method for fabricating a buried plate of a deep trench capacitor is described. A substrate having a deep trench therein is provided. A doped layer is formed on the surface of the deep trench and a material layer is formed on the doped layer. A passivation layer is formed on the sidewall of the deep trench that is not covered by the material layer. After removing the material layer, a thermal process is conducted to drive-in the dopants in the doped layer to the substrate to form a doped region, wherein the doped region serves as a buried plate of the deep trench capacitor. The doped layer also reacts with the substrate to form an oxide layer. After removing the oxide layer, a bottle-shaped deep trench is formed.